### **ENVIRONMENTAL CHEMISTS**

Date of Report: October 29, 1996 Date Received: October 17, 1996 Project: Acid Tanks, PO #M54934

Date Extracts Analyzed: October 23, 1996

### RESULTS FROM THE ANALYSIS OF PRODUCT SAMPLES FOR IRON, CHROMIUM, COPPER, NICKEL, AND ZINC USING METHOD 6010

Results Reported as mg/L (ppm)

Sample ID	<u>Iron</u>	Chromium	<u>Copper</u>	<u>Nickel</u>	Zinc
M54934 A (small tank)	45,000	7,700	6,700	11,000	9
M54934 B (large tank)	43,000	9,300	750	7,900	29
Method Blank	<5	<5	<5	<5	<5

FAIEDMAN & BRUYA, INC. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282

FORMS/C-20

### SAMPLE CHAIN OF CUSTODY

10.17.96 11:15

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Address 628	April 8	<b>T</b>	10110	Contact	CIBICITES		3370
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					Retur	se after 30 day n Samples or Instructions	s
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### **ENVIRONMENTAL CHEMISTS**

James E. Bruya, Ph.D. Beth M. Albertson, M.S. Bradley T. Benson Kelley D. Wilt 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044

November 5, 1996

Gerry Thompson, Project Manager Alaskan Copper Works 628 South Hanford Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the amended results from the testing of material submitted on October 17, 1996 from your Acid Tanks, PO #M54934 project. The report has been amended to correct the result for sample M54934 A (small tank) for the Total Metals analysis.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson Chemist

keh

Enclosures ACU1029R.DOC

### **ENVIRONMENTAL CHEMISTS**

Date of Report: October 29, 1996 Date Received: October 17, 1996 Project: Acid Tanks, PO #M54934

Date Extracts Analyzed: October 23, 1996

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Results Reported as mg/L (ppm)

Sample ID	<u>Iron</u>	<u>Chromium</u>	Copper	<u>Nickel</u>	<u>Zinc</u>
M54934 A (small tank)	95,000	7,700	6,700	11,000	9
M54934 B (large tank)	43,000	9,300	750	7,900	29
Method Blank	<5	<5	<5	<5	<5

### **ENVIRONMENTAL CHEMISTS**

Date of Report: October 29, 1996 Date Received: October 17, 1996 Project: Acid Tanks, PO #M54934

# QUALITY ASSURANCE RESULTS FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Laboratory Code: 73401 (Duplicate)

	Denouting	Sample	Duplicate	Relative Percent	Accortonac
Analyte:	Reporting Units	Result	Result	Difference	Acceptance Criteria
Chromiur	n mg/L (ppm)	<5	<5	nm	0-20
Copper	mg/L (ppm)	<5	<5	nm	0-20
Nickel	mg/L (ppm)	<5	<b>&lt;</b> 5	nm	0-20
Zinc	mg/L (ppm)	<5	<b>&lt;</b> 5	nm	0-20
Iron	mg/L (ppm)	12	11	9	0-20

Laboratory Code: Spike Blank

	Reporting	Spike	No. of the second	covery	Acceptance	Relative Percent
Analyte:	Units	Level	MS	MSD	<u>Criteria</u>	<u>Difference</u>
Chromium	mg/L (ppm)	5	99	97	80-120	2
Copper	mg/L (ppm)	5	92	92	80-120	0
Nickel	mg/L (ppm)	10	100	98	80-120	2
Zinc	mg/L (ppm)	5	103	101	80-120	2
Iron	mg/L (ppm)	10	105	104	80-120	1

nm- The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

a - The analyte was detected at a level less than five times the detection limit. The RPD results may not provide reliable information on the variability of the analysis.

### **ENVIRONMENTAL CHEMISTS**

Date of Report: October 29, 1996 Date Received: October 17, 1996 Project: Acid Tanks, PO #M54934

Date Extracts Analyzed: October 28, 1996

### RESULTS FROM THE ANALYSIS OF PROCESS WATER SAMPLES FOR SPECIFIC GRAVITY @ 15.56 °C

Sample ID			Specific Gra	avity
하는 사람들은 소리를 하는 사람이 나를 받				
M54934 A (small tank)			1.22	2
M. Aller Wille Shirt Park				
M54934 B (large tank)			1.22	2

# FRIEDMAN & BRUYA, INC. ENVIRONMENTAL CHEMISTS

Date of Report: October 29, 1996 Date Received: October 17, 1996 Project: Acid Tanks, PO #M54934

### QUALITY ASSURANCE RESULTS FOR SPECIFIC GRAVITY

Laboratory Code: 73403 (Duplicate)

	Reporting		Sample	Duplicate	Relative Percent
Analyte:	Units	The same	Result	 Result	Difference
	New Yorks and Fall				
Specific Gravity	@ 15.56°C		1.22	1.22	0

### **ENVIRONMENTAL CHEMISTS**

Date of Report: October 29, 1996 Date Received: October 17, 1996 Project: Acid Tanks, PO #M54934

Date Extracts Analyzed: October 28, 1996

### RESULTS FROM THE ANALYSIS OF PROCESS WATER SAMPLES FOR % ACID BY VOLUME

Sample ID	% Acid
M54934 A (small tank)	9.3
M54934 B (large tank)	

### **ENVIRONMENTAL CHEMISTS**

Date of Report: October 29, 1996 Date Received: October 17, 1996 Project: Acid Tanks, PO #M54934

### QUALITY ASSURANCE RESULTS FOR % ACID BY VOLUME

Laboratory Code: 73403 (Duplicate)

	Reporting	Sample	Duplicate	Relative Percent
Analyte:	Units	Result	Result	Difference
Acid	% by Volume	11	11	0

PRIEDRAN & BRUYA, INC. 3012 16th Avenue West Searie, WA 98119-2029 (206) 235-2282

FORMS/COC

## SAMPLE CHAIN OF CUSTODY

| RNJ AI | 10.17.96 | 11:15

Send Repo	To: Alase	KAZ Copper	Contact	ELALD Thom	psoN				
Address	1228	Marsac ST		7.340	CALCULATION CO.				
City, State	Zip SeAd	tle WA	78134						
Phone #	11: Zip_Seadle WA 78/31/ (206) 382-8379 Date 10-17-56								
SITE NO.	PROJECT NAME PURCHASE ORDER #								
72.	38		Acid TA.	~105	N.	54834			
SAMPLE	(signature)					PROJECT LOCAT	ION		
Dans	/Cof		<del></del>		326	00 6th A	ve 5.		
REMARKS					SA	MPLE DISPOSAL INFO	DRMATION		
Sign 3						Dispose after 30 da Return Samples Call for Instruction	ns		
Š.	nple#	Date/Time Sampled	Type of Sample	# of Jars	Lab Sample #	Analyse Request	ed		
M 549		10/17/54 9:45	1-1N03	1	73402	% of Acid,	5.6		
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### **ENVIRONMENTAL CHEMISTS**

James E. Bruya, Ph.D. Beth M. Albertson, M.S. Bradley T. Benson Kelley D. Wilt 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044

October 29, 1996

### INVOICE # 96ACU1029-1 DUPLICATE COPY

Accounts Payable Alaskan Copper Works 628 South Hanford Seattle, WA 98134

RE: Project Acid Tanks, PO #M54934: Results of testing requested by Gerry Thompson, Project Manager for material submitted on October 17, 1996.

2 product samples analyzed for	
Iron, Chromium, Copper, Nickel, and Zinc	
using Method 6010 @ \$75 per sample	\$ 150.00
2 process water samples analyzed for Specific Gravity	
@ \$25 per sample	50.00
2 process water samples analyzed for % Acid by Volume	
@ \$25 per sample	50.00
맞은데 얼마나 가는 얼마 얼마는 그릇을 보는 것이 얼마를 하는 것이 얼마나 없었다.	
Amount Due	\$ 250.00

### **ENVIRONMENTAL CHEMISTS**

James E. Bruya, Ph.D. Beth M. Albertson, M.S. Bradley T. Benson Kelley D. Wilt 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044

October 29, 1996

Gerry Thompson, Project Manager Alaskan Copper Works 628 South Hanford Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of material submitted on October 17, 1996 from your Acid Tanks, PO #M54934 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson

Chemist

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Enclosures ACU1029R.DOC